IRANIAN SOCIETY of CRYSTALLOGRAPHY and MINERALOGY

Vol. 28, No. 1, Spring 1399/2020

IRANIAN JOURNAL of CRYSTALLOGRAPHY and MINERALOGY

Investigation of adakitic feature and magmatic origin of mineralized monzonitic stock in the Niza area, northwest Iran

H. Khalilzadeh*, S. Alipour, A. Abedini

Department of Geology, Faculty of Sciences, Urmia University

(Received: 3/2/2019, in revised form: 22/5/2019)

Abstract: Niaz area is located at the Alborz-Azarbaijan magmatic zone in the northwest of Iran. All of the rock units in this area are composed of intermediate to acidic igneous rocks of Oligocene to Miocene age. Based on geochemical data, the mineralized monzonitic rocks in this area belong to high-K calc-alkaline and shoshonitic magma series, has a metalauminous to slightly peraluminous nature and belongs to the active continental margins and post-collision tectonic settings. Enrichment in LILE and LREE elements and depletion of HFSE and HREE elements are the main characteristics of these rocks. Geochemical features such as high SiO_2 and Al_2O_3, low MgO, low content of Y (9.9 to 18.6 ppm) and Yb (0.83 to 1.53 ppm), high values of $(La/Yb)_N$ (23.43 to 64.82), high Sr content (mean ~ 719.74 ppm), and low content of HFSE elements indicate the adakite affinity of these rocks. In general, the geochemical properties of the samples are similar with the high-silica adakites (HSA). High ratios of Sr/Y and $(La/Yb)_N$ indicate the presence of amphibole and a small amount of garnet as stable phases in the source region of magma and it seems that the parent magma of studied adakite rocks is formed from the partial melting of the thickened lower continental crust.

Keyword: *Adakite; magmatic origin; partial melting; monzonitic stock; Niaz.*

*Corresponding author, Tel: 09147191080, E-mail: hkhalilzadeh62@gmail.com

[DOR: 20.1001.1.17263689.1399.28.1.1.1]

[DOI: 10.29252/ijcm.28.1.3]